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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,624	11/04/2002	Edward Jobson	0173.019.PCUS00	4218

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

MAIL DATE	DELIVERY MODE
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10/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/065,624	Applicant(s) JOBSON ET AL.	
	Examiner TU M. NGUYEN	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36, 37, 46 and 47 is/are rejected.
- 7) ☒ Claim(s) 38-45 and 48-55 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) filed on October 9, 2007 has been entered. Per instruction from the RCE, an enclosed Applicant's Amendment has been entered. Claims 1-35 have been canceled. Claims 36-55 have been added and are pending in this application.

Drawings

2. The formal drawing of Figure 6 filed on October 9, 2007 has been approved for entry.

Claim Objections

3. Claim 36 is objected to because on line 4 of the claim, "and" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aine (U.S. Patent 3,903,694) in view of Szymkowicz (U.S. Patent 6,915,629).

As shown in Figures 1-2, Aine discloses a device and a method for reducing an amount of a gas component (NO_2) in an exhaust gas flow of a combustion engine (2), the method comprising steps of:

- feeding the exhaust gas flow from the engine to a separation unit (6);
- separating, in the separation unit, the gas component (NO_2) from the exhaust gas flow in a wall structure (12) comprising material (lines 43-63 of column 4) which provides a selective passage of the gas component before other gas components (nitrogen, oxygen, CO) in the exhaust gas flow; and
- returning the separated gas component to an inlet (3) of the engine via a conduit, wherein the separated gas component is constituted by an oxide of nitrogen (NO_x compound) in the exhaust gas flow, the gas component including fresh air as a carrier gas for the gas component, as clearly shown in Figure 1.

Aine, however, fails to specifically disclose that the engine is adapted for operation by a lean air/fuel mixture; and that the method further comprises a step of detecting an amount of the oxide of nitrogen in the exhaust gas flow.

Aine discloses the claimed invention except for applying the invention to a lean air-fuel ratio burning engine. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the invention of Aine to a lean burning type engine, since the recitation of such amounts to an intended use statement. Note that all internal combustion

engines that utilize a hydrocarbon compound as a fuel and air as a source of oxygen generate exhaust gases containing harmful emissions of HC, NO_x, soot, CO, etc, that require purification before the gases can be released to the atmosphere; and the mere selection of the purification system of Aine for use in a lean air-fuel ratio burning engine would be well within the level of ordinary skill in the art.

As shown in Figure 1, Szymkowicz discloses an after-treatment system for reducing emissions in diesel engine exhaust, comprising a NO_x catalyst (22) and a NO_x sensor (36) located downstream of the catalyst. As indicated on line 66 of column 7 to line 9 of column 8, Szymkowicz teaches that it is conventional in the art to utilize the NO_x sensor to detect an amount of NO_x in an exhaust gas stream, wherein the detected amount is used to control an engine air-fuel ratio and oxygen concentration in the exhaust gas stream for the efficient reduction of NO_x at the catalyst. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the NO_x sensor taught by Szymkowicz to control a flow of air into the separation unit in Aine, since the use thereof would have been routinely practiced by those with ordinary skill in the art to remove harmful NO_x emissions in an exhaust gas stream.

6. Claims 37 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aine in view of Szymkowicz as applied to claims 36 and 46, respectively, above, and further in view of Casey (U.S. Patent 5,661,973).

The modified device and method of Aine disclose the invention as cited above, however, fail to disclose that the engine is provided in connection with a turbo-aggregate with an exhaust gas turbine and a compressor for compression of air which has been fed into the engine,

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characterized in that an outlet conduit of the separation unit is connected to a point upstream of the compressor.

As shown in Figure 1, Casey discloses a fuel saving device for an internal combustion engine, comprising a separation unit (10) having a recovery chamber (22) for trapping residual fuel components in an exhaust gas stream and returning the components to the engine via an outlet conduit (29). As indicated on lines 39-50 of column 3, Casey teaches that it is conventional in the art to return the residual fuel components to a turbo-aggregate with an exhaust gas turbine and a compressor for compression of air that has been fed into the engine, wherein the outlet conduit of the separation unit is connected to a point upstream of the compressor. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Casey in the modified device and method of Aine, since the use thereof would have been routinely practiced by those with ordinary skill in the art to effectively remove harmful emissions in the exhaust gas stream.

Allowable Subject Matter

7. Claims 38-45 and 48-55 are objected to as being dependent upon a rejected base claim, but would be allowable if amend to overcome a claim objection outlined above and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMN

October 1, 2008

/Tu M. Nguyen/

Tu M. Nguyen

Primary Examiner

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